DICE Supports Joint Interoperability Testing, Training and Exercise Transformation Initiatives

By Capt. Paul Dunbar, Marty Mendoza, Ric Harrison and Chris Watson

The Department of Defense (DoD) Interoperability Communications Exercise (DICE) is an annual training exercise, sponsored by U.S. Joint Forces Command (JFCOM) and conducted by the Defense Information Systems Agency (DISA) Joint Interoperability Test Command (JITC).

DICE is the only DoD exercise whose primary purpose is to certify systems for joint interoperability. DICE builds upon the successes of other DoD technology demonstration and risk mitigation events. As the sole interoperability certifier of DoD Information Technology Systems (ITS) and National Security Systems (NSS), JITC conducts DICE in support of DoD joint interoperability testing, training and exercise transformation initiatives.

Figure 1. Representative Joint Task Force used during DICE.

Participation includes communications equipment and personnel from each of the Services as well as U.S. Northern Command (NORTHCOM), the Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA).

DICE has evolved from its birth in the late 1980s into one of DoD's premiere net-centric advanced technology joint certification exercises that involves more than 30 switch systems geographically dispersed over seven time zones. DICE reduces the warfighters' risk of operational failure by aggressively testing new versions of software, equipment and employment techniques in a representative Joint Task Force (JTF) communications network. Figure 1 is an illustration of the DICE Joint Task Force.

DICE employs a robust and realistic joint architecture that provides opportunities to vigorously evaluate voice, data and video interfaces, which are critical to split-base operations.

Actual operational units install, operate and maintain the equipment and systems for the exercise. These configurations are characteristic of those used in real world combat and contingency operations by the warfighting community and provide sufficient data to assess interoperability and determine if anomalies experienced in the past were corrected.

DICE provides Joint and Service communicators with an opportunity to achieve a degree of comfort using new versions of hardware and software. This is achieved through JITC's emphasis on the three components of interoperability: ***Forces***, ***Procedures*** and ***Equipment***. DICE allows tremendous training opportunities. Typical DICE objectives include:

Interoperability: Successfully demonstrate a high degree of interoperability of new versions of hardware and software employed in Joint transmission, switching and information systems.

System Certification: Successfully integrate and conduct Joint interoperability tests on selected new systems.

Assessments: Successfully conduct developmental assessments that may not conclusively qualify for certification, but may provide valuable insight into possible future capabilities.

Training: Replicate Joint communications architectures and operational or organizational structures that allow participating units to develop mission performance-oriented training. This includes developing interoperability skills with current and legacy communications equipment and systems.

Network System Control: Establish a Joint Communications Control Center that will provide operational direction and management for all Joint net-centric resources.

Feedback to the warfighters and acquisition communities is provided in several ways. JITC publishes a DICE Test Report, Interoperability Assessments Reports, Interoperability Certification Letters and additions to our quarterly Lessons Learned Report.

DICE 2004 proved to be a huge success and involved equipment and personnel from the Army, Air Force, Marine Corps, Joint Communications Support Element (JCSE), Special Operations Signal Units, Canada, FEMA and industry. FEMA's involvement and National Guard and Reserve personnel in nontraditional roles helped supplement operational unit participation during this year's event.

Contractors with DoD sponsorship were also invited to participate in DICE. JITC's DICE '04 network successfully supported 18 tests, assessments and demonstrations. DICE '04 allowed JITC and all participants to aggressively test new versions of software, equipment and critical net-centric technologies.

It also created a dynamic training environment for enhancing the warfighter's skills in tactical network planning, management disciplines and operational awareness.

Clearly, DICE is not just a certification exercise. Organizations may participate in DICE in a number of ways. Some are required to participate as part of a fielding or maintenance process. Other organizations voluntarily participate as their Operations Tempo (OPTEMPO) allows for testing new equipment or by taking advantage of the joint network environment for training.

Vendors use DICE as a method to demonstrate solutions for warfighter issues or problems or to have their products certified for joint interoperability. JITC absorbs the majority of JITC testbed costs and costs for commercial satellite access (Ku- and C-band if required). Program managers, vendors and individual organizations take advantage of the DICE exercise because it lowers their testing expense while contributing to overall network robustness. Specific test results obtained during the event are shared only with the participants and JITC as their trusted agent.

JITC will conduct next year's event February through April 2005 at nationwide locations. Although involvement in DICE is voluntary, JITC is confident that participation in DICE 2005 will substantially increase because of the many synergistic opportunities it presents to all the Services and agencies. For example, the Navy plans to have a considerable presence in DICE '05.

By capitalizing on DICE resources, the Navy can increase the level of Joint systems testing of key FORCEnet technologies and pilot programs such as: CVN-21 – the Nimitz class nuclear aircraft carrier; DD(X) – the Next Generation Destroyer Program; and the Broad Area Maritime Surveillance (BAMS) Unmanned Aerial Vehicle (UAV). Other interoperability certification test and assessment events planned for DICE '05 include the following:

√ Marine Forces Systems Command (MARFORSYSCOM) Joint Enhanced Core Communications System (JECCS) with Digital Tech Control (DTC) Joint Certifications

√ Air Force Theater Deployable Communications Integrated Communications Access Package (TDC-ICAP) Joint Certification

√ U.S. Central Command (USCENTCOM) Time Division Multiple Access (TDMA) System Joint Certification

Above: The interior of the humvee shown at right containing the Marine Corps Joint Enhanced Core Communications System (JECCS) with Digital Tech Control (DTC) systems. JITC will conduct Joint Interoperability Certification tests of the JECCS with DTC systems during DICE '05.

√ Army Communication Electronics Command (CECOMs) Software Engineering Center (SEC) with the Common Baseline Circuit Switch software (CBCS) Joint Certification

√ U.S. Transportation Command (USTRANSCOM) Vocality 100 assessment

√ USNORTHCOM Lynx System assessment

√ Numerous vendor-sponsored demonstrations and interoperability assessments

√ DoD Global Information Grid (GIG) Internet Protocol Version 6 (IPv6) interoperability assessments

√ Deployed DMS Messaging interoperability assessment

For more information regarding DICE '05 planning events, go to JITC's main Web site at http://jitc.fhu.disa.mil/dice/.

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